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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,717	05/18/2006	Andrew Fox	HLA-0001	5946
23413	7590	09/05/2007		
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER DINH, TRINH VO	
			ART UNIT 2821	PAPER NUMBER
			MAIL DATE 09/05/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/559,717

Applicant(s)

FOX, ANDREW

Examiner

Trinh Vo Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 21-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 38-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/05/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 21-37 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Election was made without traverse in the reply filed on 07/17/2007.

Information Disclosure Statement

2. In the IDS filed 12/05/2005, the Examiner has been changed US 2003/043075 to US2003/0043075 to correct the typo error. The References listed have been considered and initialed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-20 and 38-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 2-3 recited "means for simultaneously supplying an electrical signal to first and second points in the dielectric resonator antenna, with a phase difference therebetween" render the claim indefinite since how a single signal can have a phase difference? It is inherently that the phase difference occurs between different signals. Clarification/Correction is required.

In claim 1, line 5, it is unclear what "its" refers to.

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The deficiencies are found in claim 38 which requires the same correction.

In claims 2-4 and 18-20, a phrase "the dielectric resonator material" has no antecedent basis. It should be changed to --the dielectric resonator antenna--.

In claims 39-40, "the input signals" have no antecedent basis.

Claims 5-20 and 41 are rejected because of their dependencies.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 8-9, 14 draw to an apparatus and method claims 38-40, as the best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Fray (EP 0587247 of record).

Respecting claims 1 and 38-40, Fray discloses, in Fig. 4-5, an antenna system (Fig.2) comprising a dielectric resonator antenna (9, 10, 2, 3), and means (5) for simultaneously supplying an electrical signal to first and second points (8, 8a) in the dielectric resonator antenna, with a phase difference therebetween, such that the first and second points each couple to a desired mode (col. 4 lines 18+) of the dielectric resonator antenna, and such that a frequency response of the antenna has two nulls in its return loss characteristic (Fig. 5).

Respecting claims 8-9, Fray discloses means (5 in Fig. 2) for supplying the electrical signal to the first and second points (8, 8a in Fig. 4) with a phase difference, such that a frequency response of the antenna has two nulls in its return loss characteristic (Fig. 5), spaced such that an operating bandwidth of the antenna system is effectively broadened and the antenna system operates as a dual band antenna (col. 5 lines 26+).

Respecting claim 14, Fray discloses a tuning crew (col. 5 lines 6-7) located adjacent the dielectric resonator.

7. Claims 1, 5, 8-9 draw to an apparatus and method claims 38-40, as the best understood are rejected under 35 U.S.C. 102(e) as being anticipated by Bit-Babik et al (US 2003/0043075 of record).

Respecting claims 1 and 38-40, Bit-Babik discloses, in Fig. 2, an antenna system (200) comprising a dielectric resonator antenna (210), and means (206) for simultaneously supplying an electrical signal to first and second points (402A, 402B, 402C in Fig. 4) in the dielectric resonator antenna, with a phase difference therebetween, such that the first and second points each couple to a desired mode (paragraph hereafter para. [0070]) of the dielectric resonator antenna, and such that a frequency response of the antenna has two nulls in its return loss characteristic (Figs. 7, 12, 14, 16).

Respecting claims 5 and 8-9, Bit-Babik discloses the means for supplying an electrical signal comprise probes (para. [0044]), means (206) for supplying the electrical signal to the first and second points with a phase difference, such that a frequency response of the antenna has two nulls in its return loss characteristic, spaced such that an operating bandwidth of the antenna

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system is effectively broadened (para. [0068]) and the antenna system operates as a dual band antenna (paras [0066], [0088]-[0089]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bit-Babik in view of Adachi et al (US 2001/0054978).

Bit-Babik discloses every feature of the claimed invention except feeding slots. Adachi discloses, in Fig. 16, an electrical feed line (54), and the dielectric resonator material (53) comprises slots (55a, 55b) to allow a magnetic field generated around the electrical feed line (54) to couple into the dielectric resonator material (53) wherein the electrical feed line comprises a first path leading to a first slot (55a) in the dielectric resonator material, and a second path leading to a second slot (53b) in the dielectric resonator material, and the first path terminates underneath the first slot in the dielectric resonator material, and the second path terminates underneath the second slot in the dielectric resonator material.

10. Claims 6-7, 10-13 and 15-20 draw to the apparatus and the method claim 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bit-Babik.

Respecting claims 6, 10-13 and 15, Bit-Babik discloses every feature of the claimed invention except connection pads and a support pad. However, using conductive pads has been a well-known practice in the art to supply electrical signal to antennas as well as using

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pads for support the antennas. Therefore to provide Bit-Babik's antenna with pads would have been deemed obvious to one skill in the art since it's generally conventional.

Respecting claims 7, 16-17 and 41, although Bit-Babik fairly suggest the phase difference being in the range of 140° - 220° or first and second points (402A, 402B, 402C) coupled to a HEM mode, it would have been obvious to one having ordinary skill in the art to feed the resonator with signals having phase difference in claimed range or a desired mode, since it has been held that where the general conditions of a claim are discloses in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

Respecting claim 18-20, Bit-Babik discloses the end face of the dielectric resonator material being coated with an electrical metal conductor (1302 in Fig. 15) acting as a mirror.

11. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bit-Babik in view of Kienberger et al (US 4,201,958).

Bit-Babik discloses every feature of the claimed invention except a tuning crew. Kienberger discloses a tuning crew (3, 13) located adjacent to the resonator (2). However using a crew has been a well-known manner in the art to tune resonator's frequency. Therefore providing Bit-Babik's resonator with the tuning screw as taught by Kienberger would have been obvious to one skill in the art to adjust/change/tune resonance behavior of the resonator.

Inquiry

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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August 28, 2007

A handwritten signature in black ink, appearing to read 'Trinh Dinh', followed by a long horizontal line.

TRINH DINH
PRIMARY EXAMINER